

REMARKS

Reconsideration is requested in view of the above amendments and the following remarks. Claims 1 has been revised. Support for the revisions can be found at, e.g., page 10, lines 20-23 of the specification, among other places. Claims 1 and 3-16 remain pending in the application.

Claims 1 and 3-16 are rejected under 35 USC 103(a) as being unpatentable over Derand et al. (US Publication No. 2002/0125135) in view of Harauchi et al. (sic- Niwa et al.) (JP Publication No. 2001-294692) in view of Hruska et al. (Hruska et al., *Ageing of the Oxyfluorinated Polypropylene Surface*, J. FLUORINE CHEM. 105, pp. 87-93 (2000)). Applicants respectfully traverse this rejection.

Claim 1 requires hydrophilization for a substrate including a primary modifying step for bringing a modifying gas into contact with an inner surface of a groove to cause a primary substitution group from the modifying gas to bond to a keto group of polymethyl methacrylate, and a secondary modifying step for substituting the primary substitution group bonded to the keto group with a hydroxyl group.

As acknowledged in the rejection, Derand et al. do not teach use of a hydrophilization treatment to treat a grooved surface of a substrate. Instead, Derand et al. merely discuss imparting a hydrophilic property to a non-hydrophilic surface by forming a hydrophilic coating (see Derand et al., Abstract), rather than imparting a hydrophilic property to a non-hydrophilic surface of polymethyl methacrylate by converting the surface property of the polymethyl methacrylate itself. Moreover, Derand et al. are completely silent as to use of polymethyl methacrylate, much less causing a primary substitution group from a modifying gas to bond to a keto group of polymethyl methacrylate.

Harauchi et al. do not remedy the deficiencies of Derand et al. Instead, Harauchi et al. merely discuss converting a hydrophobic surface of a polymer into a hydrophilic surface by a hydrophilization treatment, where the hydrophilization treatment includes exposing the hydrophobic surface to a mixture of fluorine/oxygen/nitrogen gas followed by exposure to ambient air, which contains moisture (see Harauchi et al., paragraph

[0004]). Harauchi et al. are silent as to use of polymethyl methacrylate and provide no teachings or suggestions of causing a primary substitution group from a modifying gas to bond to a keto group of polymethyl methacrylate and then substituting the primary substitution group bonded to the keto group with a hydroxyl group, as required by claim 1. In fact, Harauchi et al. focus on treating an article made of a polymeric compound that has an aromatic ring by processing the polymeric compound which has an aromatic ring with fluorine gas (see Harauchi et al., Abstract and claims 1-4, paragraphs [0004]-[0006]). Nowhere do Harauchi et al. teach or suggest modifying gas to bond to a keto group of polymethyl methacrylate.

Hruska et al. merely discuss a surface treatment of polypropylene that does not include a keto group, and thus do not remedy the deficiencies of Derand et al. and Harauchi et al.

Moreover, Applicants respectfully contend that it is improper to modify Harauchi et al. with Derand et al. The mere fact that references can be combined or modified does not render the resultant combination obvious. The references of record provide no teachings or suggestions of the combination proposed in the rejection. As discussed above, the focus of Derand et al. is to form a hydrophilic coating on the surface of a substrate (see Derand et al., Abstract and claim 1). On the other hand, Harauchi et al. discuss converting a hydrophobic surface of a polymer into a hydrophilic surface by a hydrophilization treatment. Nowhere do the references of record teach or suggest using the hydrophilization treatment of Harauchi et al. in Derand et al., much less causing a primary substitution group from the modifying gas to bond to a keto group of polymethyl methacrylate, and a secondary modifying step for substituting the primary substitution group bonded to the keto group with a hydroxyl group, as required by claim 1.

For at least these reasons, claim 1 is patentable over Derand et al. in view of Harauchi et al. in view of Hruska et al. Claims 3-16 depend ultimately from claim 1 and are patentable along with claim 1 and need not be separately distinguished at this time. Applicants are not conceding the relevance of the rejection to the remaining features of the rejected claims.


In view of the above, favorable reconsideration in the form of a notice of allowance is respectfully requested. Any questions regarding this communication can be directed to the undersigned attorney, Douglas P. Mueller, Reg. No. 30,300, at (612) 455-3804.



Respectfully submitted,

HAMRE, SCHUMANN, MUELLER &
LARSON, P.C.
P.O. Box 2902-0902
Minneapolis, MN 55402-0902
(612) 455-3800

Dated: May 27, 2010

By: 

Douglas P. Mueller
Reg. No. 30,300

DPM/cy